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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/241,735	02/02/1999	HIROAKI KIMURA	1776/00034	9109

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EXAMINER
FERRIS III, FRED O

ART UNIT	PAPER NUMBER
2123	10

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/241,735	KIMURA ET AL.	
	Examiner	Art Unit	
	Fred Ferris	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1 – 37 have been presented for examination. Claims 1-34 remain rejected. New claims 35-37 are rejected by the examiner.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been made of record.

Specification

3. The disclosure is objected to because of the following informalities:

The specification includes a reference to Japanese patent applications (No. 9-32415, 9-52452) as part of the claimed inventions description.

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

Corrective action is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-37 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the objections to the specification. No algorithms are given and no analytical process is described. The specification makes reference to the claimed invention analyzing a computer program, and automatically generating program analysis information but does not specifically explain the process. For example:

Page 19, line 11 states; "The program analysis unit 20_2 executes an ***analysis process*** *for graphically displaying a flow graph on the computer screen". The specific* ***analysis process*** *is not disclosed. Reference is made to the* ***analysis process*** *"analyzing by batch process using various kinds of* ***program analysis*** *information" P19-L24), and executing a* ***"predetermined analysis process"*** *(P20-L19) but no algorithm or methodology for the* ***analysis process*** *is given.*

Claims dependent on independent claims 1, 11, 13, 22, 24, and 33 inherit this defect as do new claims 35-37.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-37 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent No. 6,282,701, Wygodny et al. While the specification regarding the claimed invention is delinquent in the areas sited in paragraphs 3 and 4, the examiner makes prior art rejections based the following observations.

Regarding independent claim 1 and dependent claims 2-10:

Wygodny discloses: (absract, figures 13, 14, 3A, 3B, 5, 6 7, summary of invention, and detailed description of preferred embodiment)

Wygodny discloses a program analyzer method and apparatus having a graphical user interface, which collects trace information for use in analyzing a computer program. (a "trace" refers to the analysis information being obtained) The tracing is performed without requiring modifications to the executable or source code files. Trace data is collected according to instructions in a trace options file that is set up through an interactive process by an operator. The trace data provides a graphical representation of the collected (analyzed) data showing program flow, program calls, and I/O information. (figure 3A, 3B, 5-7, 13-14) The system can trace multiple processes in the program and display translated trace information on the display screen to allow the user to analyze the execution of the program. Variables and memory values can also be traced. The user can view variable values as in an

ordinary debugger. The variables may include function arguments, the C++ "this" pointer, function return values, local variables, global variables, static variables, etc. The data to which a pointer is pointing can also be traced. Tracking of variables in memory is accomplished by first analyzing the debug information to find the address (global, static, stack, or dynamic address) of the variable and the data it holds.

Regarding independent claim 11 and dependent claim 12:

Wygodny teaches a program analyzer that provides a graphical representation of the collected (analyzed) data showing program flow (hierarchy), program calls, and I/O information. (figure 3A, 3B, 5-7, 13-14) The analyzed data is stored in a database that can be read out in method that is predetermined the operators inputs.

Regarding independent claim 13 and dependent claims 14 –21:

Wygodny teaches a program analyzer which collects trace information for use in analyzing a computer program. (a "trace" refers to the analysis information being obtained) Trace data is collected and stored according to instructions in a trace options file that is set up through an interactive process by the operator and is hence predetermined. A representation of program flow, calls, I/O and their related dependence is also taught. (figure 3A, 3B, 5-7, 13-14)

Regarding independent claim 22 and dependent claim 23:

Wogoby teaches a software analysis method where the user may analyze trace data (collected analysis information) based on data stored in a trace log file (predetermined) which shows the sequence of events and provides a comprehensive string that are meaningful to the user. The user defines analysis objectives according to instructions in a trace options file that is set up through an interactive process by the operator. (CL7-L39-67)

Regarding independent claim 24 and dependent claims 25-32:

Claims 24-32 simply claim a recording medium for the apparatus described in claims 1-10. Wygodny teaches a computer program (and readable recording medium) for a program analysis information generation function and generates program analysis information. (figure 3A, 3B, 5-7, 13-14) Computer readable storage mediums such as hard drives, floppy drives, and associate file servers are considered to simply be old and well known methods of storing computer data.

Regarding independent claim 33 and dependent claim 34:

Claims 33 and 34 simply claim a recording medium for the analysis method described in claims 22 and 23. Computer readable storage mediums such as hard drives, floppy drives, and associate file servers are considered to simply be old and well known methods of storing computer data. Object-oriented database techniques are old and well known methods of database construction.

Regarding new claims 35-37: Claims 35-37 are rejected for reasons sited in section 6 of the office action.

Response to Arguments

6. *Applicants arguments filed on 8 April, 2002 have been fully considered.*

Regarding applicants response to rejections under 35 USC 112(1): Examiner notes that, in general, the arguments have simply reiterated the language of the specification and claims and have not specifically addressed the detailed rejection as stated in the office action. Specifically, applicants have submitted that the specification of the present invention is not required to explain the disclosed processes because the processes are generally well known. These processes include metrics information, redundancy information, and maintenance document information are ***generated on the basis of program analysis information****, such as source code, syntactic analysis tree, symbol table, call graph, flow graph, data flow information, program dependence graph, and module I/O information. (mere reiteration of the specification) Examiner agrees that processes relating to source code, syntactic analysis tree, symbol table, call graph, flow graph, and data flow information are obvious and well known but points out this only further supports examiners rejection of dependent claim 8. Processes such as metrics information, redundancy information, and maintenance document information do not have an equivalent specific meaning in the art and are not sufficiently defined by the specification. Examiner further notes that the applicants have claimed an apparatus and method for* ***program analysis*** *as a basis for all independent claims and have not*

claimed a syntactic analysis tree, symbol table, call graph etc. excluding dependent claim 8.

The 112(1) rejection was given, and is upheld, by the examiner because the specification does not contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use the invention. For example, the specification makes repeated reference to ***"program analysis"*** *and an* ***"analysis process"*** *but never discloses specifically what the system/method does to* ***"analyze the program"*** *or exactly what the* ***"analysis process"*** *consists of. The* ***"analysis"*** *process is clearly a critical part of the invention but is not disclosed in the specification. These terms appear in each of the claims and are clearly not supported by the specification. A reference is made to a* ***"predetermined analysis process"*** *(P20-L19) displaying* ***analysis results*** *on a computer screen using GUI's, but no steps or algorithms are given for the analysis process and no definition is given of how the GUI symbols would be used by the operator or what they would represent. While the specification makes reference to steps 1-10, the steps critical to the operation of the claimed invention, namely steps 5 (****generate analysis information****) and step 9 (****analyze the program****) are not described in a manner that would enable any person skilled in the art to make and use the invention. Accordingly, the 112(1) rejection is upheld by the examiner.*

Regarding applicants response to rejections under 35 USC 102(a): Examiner finds applicants argument regarding claims 1-34 to be persuasive. Accordingly, 102(a) rejections have been withdrawn by the examiner.

*Regarding applicants response to rejections under 35 USC 102(e): As stated in the office action of November 11, 2001 the specification regarding the claimed invention is delinquent in the areas sited in previous paragraphs and the examiner has made prior art rejections based on the limited scope of the disclosure. Accordingly, since as sited above, no specific information regarding how of claimed inventions' "**analysis process**" operates, the examiner has been forced into taking a broad interpretation of exactly what the applicants invention is and what specifically has been claimed. Wygodny teaches a method and system used to "analyze" a computer program (CL3-L17, CL4-L54) and has accordingly been applied as prior art against the claimed invention.*

Applicants have argued that the trace information of Wygodny is somehow different from the program analysis data of the claimed invention which consists of data such as syntactic analysis tree, symbol table, and call graph data. However, examiner points out that merely gathering and storing information to processes relating to source code, syntactic analysis tree, symbol table, call graph, flow graph, and data flow information, which by applicants own admission are obvious and well known, does not constitute the basis for that which is unique or novel. (i.e. patentable) Further, the act of "tracing", as disclosed by Wygodny, merely refers to the process of using a monitoring program to record information about a software program and includes variables relating

program flow (of functions), interrupts (calls), symbol table (trace tree), and source code which are stored for further analysis. (CL8-L8, 26, 41) Trace programs having a graphical user interface, as does Wygodny, decode program information and display it on screen to allow the developer to ***analyze*** *the program as does the claimed invention does. Accordingly, examiner disagrees with applicants argument that the trace data of Wygodny is technically different from the analysis information of the claimed invention.*

Applicants have also argued that the claimed "analysis information" is further "classified" but have not disclosed specifically how the analysis data is classified. For example, it would be obvious to classify syntactic data as such, or symbol data as such, etc. but again, this would not be unique or novel. Applicants have further argued that this "classified" analysis information is stored by the claimed invention using a hierarchical data structure. Wygodny teaches the storeing analysis (trace) data using a hierarchical data structure. (CL8-L64, 67, CL9-L18)

The examiner disagrees with the applicants argument that the tree structure (taught by Wygodny) showing the calls and returns of functions is not a showing of the calling relationship between functions. (See Fig. 3A) Functions are simply a form subroutine that performs a process and returns a value. A function call is merely a programs request to perform services and includes the coded name of the function alone with any parameters needed to perform the task. Wygodnys' showing the calls and returns of functions is in fact a showing of the calling relationship between functions.

Examiner further disagrees that the claimed inventions module I/O (interpreted to be input/output data from software modules) is different from the I/O data gathered by the trace analysis process of Wygodny. As previously mentioned, the process of "tracing" simply uses a monitoring program to record information about a software program and includes I/O variables.

Applicants have argued that influence range is obtained by checking the relationship of variables in source code of the program but do not disclose exactly what relationship is checked or how it is checked. The specification makes reference to the "range of influence of a given line of code of the program" being analyzed, but does not say how, and to the fact that "source code is displayed on the computer screen" and the "operator can confirm if the modified program has an influence that he or she intended" but gives no definition what the intended influence is. Accordingly, the examiner interprets on-screen trace analysis display of Wygodny to include the capability of allowing an operator to determine a programs "influence" by analyzing the trace window display. (CL8-L5-50)

Applicants further argue that claimed invention performs a "program analysis" by an interactive process where program analysis information is read out from a recording medium, and then, through an interactive process, the user instructs the program analysis units (using GUI) to execute "a process" to execute program analysis. However, the specification gives no sufficient description of the users "interactive process" and provides no methodology or steps for defining how "a process" would

execute program analysis. Accordingly, the examiner interprets these processes to be equivalent to the program analysis of Wygodny.

In general, applicants have not addressed the specific deficiencies of the disclosure, namely that of defining the claimed ***program analysis process,*** *and instead have chosen to focus on that which is obvious and well known to support their argument or to simply reiterate the specification. Consequently, this action is made final.*

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, careful consideration should be given prior to applicant's response to this Office Action.

U.S. Patent 5,778,212 issued to Dehnert et al teaches interprocedural analysis using a standard compilation user interface.

U.S. Patent 5,892,947 issued to DeLong et al teaches test support tool system and method for software programs.

U.S. Patent 5,963,739 issued to Homeier teaches a method for verifying the total correctness of a program.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday.

Any inquiry of a general nature relating to the status of this application should b directed to the group receptionist whose telephone number is 703-305-3900.

The Official Fax Numbers are:

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